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MUST THERE BE AN END TO PROGRESS?

BY PROFESSOR GUSTAV CASSEL

Ever since the world economic crisis broke out just ten years ago, people have been accustoming themselves to trade depression as a natural state of affairs, and have come to regard a temporary rise up to the level of 1929 as the utmost that could be hoped for. In other words, people have given up the idea of continuous progress as the normal course of economic development. They have thus lost the right standard for what should be considered as a healthy development and, in judging all the economic experimenting that has been going on in the world, have contented themselves with far too small demands. According as hopes of continued progress have sunk, the quondam interest in a redistribution of what we already possess has been revived, and has manifested itself in ever sharper relief both in the social struggle and in the contest of nations for the dominance of the world.

It seems to be a matter of considerable importance to endeavour to reply to the question whether there is really any objective necessity for abandoning the idea of continued economic progress at the pace we had previously accustomed us to regard as normal. When I drew up the fundamental principles of my theory of social economy, I found it to be essential to throw clear light on the conditions requisite for progress and especially to concentrate my analysis on the simplest case, namely uniform progress. On the basis of the very defective material which at the time was available, I considered that the figure for normal progress could be put at about three per cent. per annum. Roughly speaking, this means the doubling both of capital and income in the course of every twenty-five years. Many people presumably regarded such a development as something quite incredible. Subsequent investigations, wich were based on a very extensive material, have, however, shown that production during the time when commerce was free has, on an average, actually increased fully to that extent. Carl Snyder's index for the world's physical production shows for the period 1865—1914 an average increase of 3.15 per cent. per annum. An immigration country which at the same time received large supplies of capital from outside came up to a considerably higher standard. In the United States, for example, one could probably reckon with a normal rate of progress of 4 per cent. per annum, which meant the doubling of production in the course of 18 years. Estimates made at Cornell University show that the country's total basic production during the period 1839—1914 increased by 4.03 per cent. per annum (Farm Economics, February 1932, where Snyder's figures are also given with diagram).

The world war naturally interrupted this course of development, but, as soon as the post-war crisis with its revolutionary effects on the monetary system had been overcome, economic progress recovered its former characteristic intensity. From 1924 to 1929 world production, according to Snyder's statistics, increased by somewhat over 20 per cent., or by 3.9 per cent. per annum. This fact indicates that progress has an interior force wich cannot be repressed even by such a catastrophe as a world war. Why then should the year 1929 be regarded as a turning-point, after which no further progress is to be expected?

There is, I presume, scarcely any one who would seriously contend that the psysical conditions for continued progress are lacking. Generally speaking, raw materials exist in an abundance which the world, in its present strange condition, almost regards as a misfortune. In cases where some shortage of raw materials might be

expected to manifest itself, there are possibilities, for a long time ahead, for the opening of new fields of production. True that continued progress cannot be conceived without some geographical redistribution of production. But this is an idea to which we have long been accustomed. Russia has possibilities for large-scale production on modern lines, which as yet can merely be dimly conceived. It can scarcely be doubted that Russia, with a more efficient economic organization, could attain results in the way of progress which would fully equal what any other country has achieved, nay, indeed, might stand out as new world records.

The world economy has shown an astonishing capacity for adjusting itself to the requirements of progress. These requirements have nowise been uniform in respect of different raw materials. On the contrary, as the result of technical developments, certain materials have acquired greater relative importance: but it has also proved possible to increase the output of those materials at a more rapid pace than that of average progress. Professor Högbom's investigations into this question must be regarded as some of the most remarkable material that has been placed at the disposal of modern economists ("Mineral Production", Ingeniörsvetenskapsakademiens Handlingar Nr. 117, Stockholm 1932). This author has found that for each of the principal raw materials there is a characteristic and singularly constant quota of progress. This quota differs considerably in respect of different materials, being, for example, 4.5 per cent. per annum for pig iron, 5.9 per cent. for copper, and 3.6 per cent. for lead.

Despite the fact that the requirements of different raw materials have varied greatly according to the course of development, it has always been found possible to produce those materials in precisely the proportion required. Does not this remarkable fact strongly support the view that it would be possible for a long time ahead to increase world production at the pace that was previously normal?

Why then should we abandon the idea of continued progress and indulge in fruitless and devastating controversies regarding the distribution of the limited supplies that already exist? There has been much talk about the profound "structural changes" of the post-war period as an impediment to continued progress. But does not this talk indicate an attempt to escape responsibility for the trade depression? Have not passed times also had their structural changes, and has not a vigorous economic movement succeeded in overcoming the difficulties of adjustment and maintaining the rate of progress? There is also reason to ask how far the unsatisfactory structural conditions of the present time may be due to irrational human action, which it should be possible to change. For example, the aggregate effect of the commercial policy of all countries has undoubtedly been to impede international commerce, with a consequent marked reduction in the effectiveness of the world economy. It is in fact impossible to maintain that the stagnation of progress is in any way due to objective necessity.

Progress has never been a machine. It has always been dependent on whether human forces working for increased progress have been allowed sufficient scope. It is possible to narrow that scope in such a degree that progress is stopped. But then people must not declare that the stagnation was necessary, or that it was idle to believe in the possibility of continued progress.

The world production index published by the League of Nations, which comprises 81 primary articles, rose for the years 1925—1929 from 95 to 106, but afterwards fell back to 103 for 1935. The development during the first-mentioned period was not particularly marked (somewhat less marked than according to Snyder's above-mentioned index); but the decline during the following period must be regarded as very considerable, if viewed relatively to the development which would have ensued if progress had only continued at the pace of the preceding period. The fall of the index during the period 1929—1935 is solely due to the marked shrinkage of production in North America, where the index number fell from 103 to 87. None of the other countries for which separate index numbers are given shows any decline in production during this period,

whilst several of them exhibit a considerable increase. This gives us reason to direct our attention particularly to the course of development in the United States.

The Federal Reserve Board's index for American industrial production, the basis of which is 100 as an average for the years 1923—1925, had in 1929 risen to 119. For five years this meant an increase of 19 per cent., corresponding to an average rise of 3.8 per cent. per annum, which for industrial development in the United States must be considered extremely moderate. Industrial production in that country subsequently fell, for the year 1932, right down to 64. This catastrophic fall was followed by a recovery. A new maximum was reached in 1937 with the index number 110, but in the following year the index fell again, down to 86. Now what does this signify? Had progress after 1929 been allowed to continue at the same pace as in the preceding five years' period, industrial production for 1939 should have reached the index number 169. And yet the average for the first 7 months of 1939 is only 97. These figures give us some idea of the real extent of the devastation to which American industrial production has been exposed.

The general economic decline in the United States is reflected in the figures for the national income. The annual statistics of the United States Department of Commerce for the national income (estimated as "the gross value of all goods and services produced minus the value of raw materials, and capital equipment consumed in current production operations") showed for 1929 a figure of 82.7 milliard dollars. For the year 1933 this figure fell to 42.5 milliard dollars. For 1938 it was 64.0 milliard dollars. These figures must now be corrected to allow for the changes in the purchasing power of the dollar. If we take as a basis the Labor Bureau's index for wholesale prices and recalculate all the income figures in the 1926 dollar, we shall find that the course of development in regard to national income shows less violent changes, but that it in any case exhibits an extremely disheartening decline. The figures are reproduced in the accompanying table, and the chart illustrates the

	National income in milliard $	Bureau of Labor Statistics. Wholesale price index 1926 = 100	National income in milliard $ and 1926 value of money	Hypothetical national income in milliard $ and 1926 value of money if annual increase from 1929 were 4 per cent
1929 . . .	82.7	97	85.2	85.2
1930 . . .	69.1	86	80.4	88.6
1931 . . .	54.2	71	76.4	92.1
1932 . . .	40.1	65	61.7	95.8
1933 . . .	42.5	66	64.4	99.6
1934 . . .	50.6	75	67.5	103.6
1935 . . .	55.8	80	69.7	107.7
1936 . . .	65.2	81	80.5	112.0
1937 . . .	71.9	86	83.6	116.5
1938 . . .	64.0	79	81.0	121.2

trend. (Original figures for income: unbroken line; recalculated in the 1926 dollar: broken line).

In order to realize the significance of this trade depression, let us assume that the increase in the national income after 1929 had proceeded at a normal rate. With a four per cent. annual rise in the national income, the United States could have increased it up to 121 milliard dollars for 1938. The difference between this and the actual figure, 81 milliards, is 40 milliard dollars with the 1926 purchasing power. Expressed in the 1938 dollar, this corresponds to 31.6 milliard dollars. Thus, instead of an income of 64 milliard dollars, the year 1938 should have shown an income of 95.6 milliard dollars. Such figures must be kept in mind if we wish to form a true idea of what American economy has lost by dropping its normal rate of progress. In the chart the assumed normal development is represented by a dotted line. It graphically shows the immense loss that has accumulated during this period as a whole.

If we now ask ourselves: What are the reasons of this portentous deterioration in the effectiveness of American production? we shall be entering on a very controversial subject. I do not intend to engage in a detailed discussion of this question. Anybody can see from the chart that the process of deflation which began in 1929 and which entailed a very marked increase in the purchasing power of the dollar, must have

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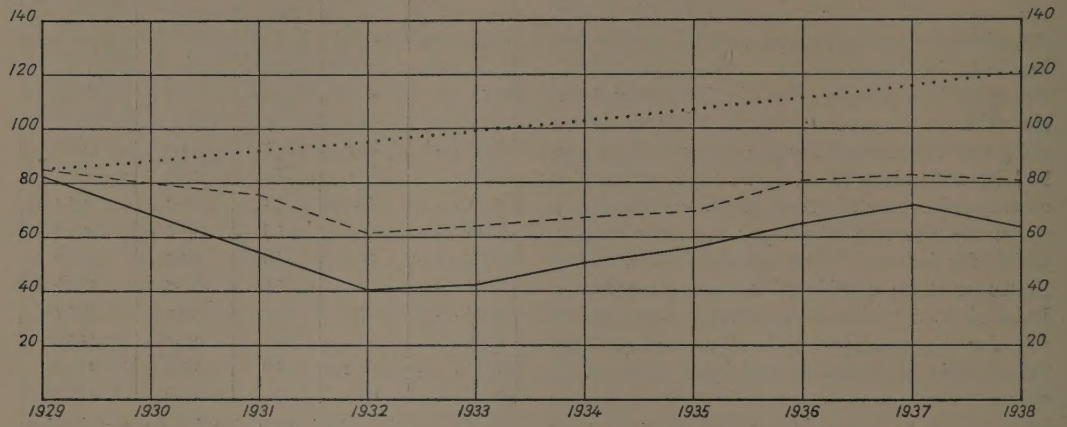
National Income of the United States in Milliard Dollars.



——— Nominal value of money.
– – – – – – Value of money in 1926.
..... On the assumption of a 4 % increase annually (Money value of 1926.)

been a factor of fundamental importance. How this deflation could have been avoided, and how the recurrence of such a calamity could be prevented for the future, is a central problem of monetary analysis as well as of practical financial policy.

What is intended here, however, is to endeavour to eliminate such explanations of the trade depression as are quite at variance with reality, but which, as experience shows, are nevertheless very popular and are liable to influence economic policy. I am alluding primarily to the theory that the course of development up to the year 1929 had proceeded at an abnormally rapid pace and had entailed an inordinate accumulation of capital assets. This view is completely devoid of foundation, as anybody can convince himself by comparing the period in question with previous booms in the United States. I have dealt with this subject in an article in this Quartely, for October 1932, and, though the views expressed there have never been refuted, the talk about an abnormal development of capital up to the peak of 1929 has been perpetually recurring.

This theory becomes quite grotesque if it is contended that the said boom, in view of its excessive intensity, must necessarily be followed by such a set-back as that which subsequently occurred. There is no necessity at all for such a set-back. A continued increase of the volume of American production at the previously normal rate would undoubtedly have been quite possible. In the United States there was a sufficiency of man power and most other factors of production. The raw materials which had to be imported could easily have been procured, seeing that the United States, as a rule, have had what is commonly called a favourable balance of payments, which might have been utilized for something far better than an enormous importation of gold. We are thus forced to the conclusion that the immense loss sustained by American economy after 1929 must have been due to errors in organization. Such errors it should be possible to remedy. But, if we are to make a determined effort in this direction, we must above all things free ourselves from the view that after 1929 all idea of continued economic progress would have to be abandoned. Our figures show that nothing of any real value is to be gained for the masses by a better distribution of the unduly reduced national income, but that, on the contrary, with continued progression vast resources would be available for raising the standard

of life of the entire population. A rational social welfare policy has undoubtedly had a great mission to fulfil, and much work still remains to be done in this field, but it lies chiefly in the direction of enhanced efficiency of labour, or rather in the spread of the high standard of efficiency already reached in some lines to all parts of the national economy. A mere reshuffling of a national income which in itself is quite insufficient would evidently be an ineffectual remedy. Conceived in this sense, a "new deal" will be a most misleading programme.

ELECTRIC POWER AS AN ECONOMIC FACTOR IN NATIONAL LIFE

BY EDY VELANDER,

MANAGING DIRECTOR OF THE SWEDISH ASSOCIATION OF ELECTRICITY UNDERTAKINGS

It may sound like a platitude to say that electricity is indispensable in the national life of modern times. And yet people do not always realize *how* indispensable it is. There is much talk in these days about what a disaster it would be if we had no oil. But imagine how much worse it would be if we had no electricity: if the light went out, if trains, railways and lifts stopped, if the telephone and radio ceased to operate, and the thousands of motors employed in industry ceased to rotate! It is amazing how electricity in the short space of fifty years has penetrated into almost every department of human life.

Electricity has, so to speak, coalesced with many of the things we handle daily. A modern machine tool in an engineering workshop is, in a way, symbolical in this respect. It is often provided with two or three electric lamps for the illumination of scales or adjustments, and perhaps with half a dozen electric motors of various sizes for the vertical and lateral motion of the machine, for feeding and driving the tool, for oil pumps, dust suction, etc. These motors are no longer installed in the roof or on the floor, connected with belts to the operated machine: they have crept into the framework, nestled into the vital parts of the machine, and have united with them, like the lungs and heart in a living organism.

But, though the electric poles stand out against the sky whereever the eye sweeps over the horizon in the inhabited parts of the country, and though red nerve fibres of copper extend into almost every room and every machine, nevertheless, from a purely *economic* point of view, electricity does not play any great part in the national life. The total turnover represented by the supply of electric power in 1938 amounted to approximately 210 million kronor, which corresponds to something between 1 and 2 per cent. of the sale value of Sweden's total trade.

In a normal household budget electric light represents about 1.1 to 1.4 per cent. of the total expenditure. If electricity is used also for cooking purposes, the figure may rise to 2.5—3 per cent. In industries, even in highly rationalized engineering workshops, the cost of electric power usually keeps within 1 and 2 per cent., rarely rising to 3 per cent. or higher. Only in isolated cases, where the consumption of power per worker is proportionately large, as in the stone and mining industries, in pulp mills and in electro-thermic processes, this item may amount to as much as 5 per cent. of the total expenditure.

Also in respect of investments, electricity represents relatively moderate values. The State power works, from which electricity is supplied to about one-third of the population of the count-

ry, have a foundation capital of approximately 350 million kronor, coresponding to about 175 kronor per head. The plants of the municipal electric authorities are booked at sums corresponding to 50—65 kronor per head, though, as a general rule, two or three times that amount has been invested from the outset. The electrification of the State railways has swallowed rather considerable sums. The grants hitherto voted by parliament for the purpose total 328 million kronor, which is equivalent to about 50 kronor per head. The sums invested by industries and by the general public in electric plant and installations can scarcely be estimated; but, in an investigation made in the United States about two years ago, it was found that investments on the consumer side of the meter were quite as large as those of the power works. The small and apparently insignificant electricity meter represents a rather considerable item in the capital budget of the supply system works. It has been estimated that the New York Edison Co. have invested four times as much capital in meters as in turbo-generators and power stations.

A noteworthy feature in electric power, as in the case of gas and water, is that the finest ramifications in the distribution network through which these necessaries are supplied belong, not to the distribution undertaking, but to the consumers, or rather, the house-owners. In a large house with rented apartments the electric installation represents from 1 to 3 per cent. of the value of the building. In small villas with electric kitchen this item may amount to 5 per cent. In recent years expenditure on electric apparatus has been showing a marked tendency to increase. What with vacuum cleaners, wireless, electric ranges, refrigerator cabinets and electric lamps, the sums spent by the average family on the purchase of electric apparatus run into a thousand kronor or more, and it would be no very large exaggeration to say that the radio, at any rate in the larger towns, represents as big a capital value as that of the entire electricity distribution.

In Swedish towns the electricity supply is almost entirely under the control of the municipalities. The reason for this is that municipalities, being in sovereign possession of their land, cannot be compelled by expropriation to cede it for the erection of electric power lines. Most municipalities, finding that the distribution of electric power — allowing for normal interest, renewal and some extensions — yields a net profit equivalent to from 10 to 20 kronor per head of population and year, have availed themselves of the right to buy out electric works started, at considerable financial risk, by enterprising private companies.

In rural areas the economic position has been somewhat different, in view of the high cost of the power lines, reckoned per consumer. Moreover, in many districts the rapid electrification of the country during the period from 1916 to 1920, when costs were abnormally high, involved a financial strain, which was particularly felt by the numerous small undertakings for the distribution of electric power on a cooperative basis. But, according as the indebtedness thus incurred has been wiped out and receipts have shown a rising trend, the financial position has improved: indeed, in many rural districts the charges for the supply of electric current are now tending to fall to a lower level than in adjacent towns.

Although, as shown above, the electricity bill is a surprisingly small item in the total budget both of households and industries, electric tariffs have greatly interested the general public and, in the course of years, have been intensively studied by experts. Electric power, from one point of view, may be regarded as a commodity: but, in respect of the calculation of costs and the fixing of price, it differs altogether from other commodities. Other sources of power, such as coal and oil, can be stored after purchase, just as cereals and other commodities. Electricity, on the other hand, must be consumed as soon as supplied, or rather, it must be supplied at any given moment in an amount corresponding to the consumption. The distributing system must therefore be proportioned with due regard to the maximum amount of energy to be supplied during any unit of time, say, a certain hour in the year. Hence the actual cost of the distribution of electric power depends not only on the amount of energy reckoned in kilowatt hours

(kWh), but also on the maximum power demand, reckoned in kilowatts (kW). That is to say, the capital expenditure is not solely determined by the amount of energy supplied.

The net cost of the distribution of electric power at low tension in Swedish towns is estimated, on an average, at about 10 kronor per head of population and year + 3.25 öre per kWh. On such a basis of expenditure it is obviously inadvisable to fix a uniform price per unit, as in the sale of other commodities. If the price per kWh is so adjusted that the electricity undertaking yields a moderate profit when consumption per head is normal, the profit will rapidly increase as the consumption rises, whilst the high average charge will act as a check on further development. Should, on the other hand, the consumption, for some reason, be reduced, ruinous losses may be incurred. In short, the defect of the uniform price is that the curve of receipts does not follow the curve of costs, with a suitable margin of profit. Hence the tendency in recent years to introduce tariffs showing a better correspondence with the actual costs. This tendency ist most clearly reflected in the so-called two-part tariff for dwellings, which consists of a fixed annual fee of about 10 kronor per room and, in addition, a consumption charge of 5 to 6 öre per kWh.

A uniform tariff, say 40 öre per kWh, was, quite naturally, the method adopted by the small electric works which arose in Sweden in former days. They consisted of a small steam-power plant, with a very limited network around it. The capital expenditure was small, the costs of operation so much the larger. A charge covering the annual costs could therefore be reckoned quite simply, on the basis of the number of kWh supplied in the course of the year.

In Norway conditions were different. In that country the first electric works were small water-power plants connected to the place of consumption by fairly long transmission lines. Capital expenditure was thus the dominant factor. In short, the costs depended on the total number of lamps in the town rather than on the number of hours per annum during which the lamps were in service. A charge covering the entire expenditure could thus be reckoned on the basis of the total power demand, and was fixed, say, at 250 to 350 kronor per kWh and year. Subsequently the tendency both in Sweden and in Norway has been to combine a demand charge with an energy charge. This, of course, is the normal arrangement in the distribution of electric power for industrial purposes.

Numerous scientific investigations have been made with a view to devising an objective method for allocating demand costs and energy costs on individual consumers and groups of consumers. As indicated above, this was a fairly simple matter so long as electricity works were on a minor scale and intended almost solely for illumination purposes. While the lines were being extended into new districts and cables were being laid in streets which had previously had no access to electric power, the capital expenditure, broadly speaking, increased proportionally to the power demand, and the operating costs proportionally to the energy supplied.

These calculations, however, were upset by the advent of the electric motor. It was soon found that neither kW nor kWh was a suitable economic unit. Instead, quite different rates had to be charged for lighting and for motor power. These difficulties were, of course, aggravated when electric current began to be used also for heating purposes. An expedient which then suggested itself was to arrange different installations with different meters for light, power and heat. This, of course, led to difficulties in practice. Hence the present tendency is to adopt "normal tariffs", which render it possible to supply current for the electric light, for the motor of vacuum cleaner, and for the cooking plates, in accordance with the same tariff and through the same meter.

When the period of expansion is over, so that the distribution system already covers every street in the town, new investments consist mainly of reinforcements in the cable network and the replacement of transformers and machines by larger units. The capital expenditure will then be no longer proportional to the total power, the increased cost per additional kilowatt being much smaller than the average cost. We are thus forced to the conclusion that an ob-

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jective and "fair" distribution of the costs among the consumers, or classes of consumers, is impracticable. We must therefore content ourselves with calculating the increased costs per kW and kWh for a certain additional supply of electric power, and we must see that the extra receipts thus obtained at least exceed that increased cost. But only about 20 per cent. of the entire cost of the distribution of power can thus be distributed on the basis of the additional expenditure. The remaining, or so-called "basic", cost cannot be distributed according to the power measured and the energy supplied. Attempts have accordingly been made to study the consumers' *valuation* of electric power and to express that somewhat diffuse concept in clear, objective figures. Remarkably enough, it looks as if these attempts will succeed, at any rate as regards the great mass of household consumers. This valuation can then be expressed as a statistical function of the specific consumption of energy.

Where lighting and motor power are measured separately, it has long been the practice to charge 30—40 öre per kWh for illumination and 15—20 öre per kWh for motor power. At those rates the use of electricity for lighting and for the operation of motors is sure to be adopted almost everywhere. Hence the price must be below the valuation. Similarly, experience shows that at a rate of 8 öre per kWh for heating current about ten per cent. of all households, at 6 öre barely half, and at 5 öre far more than half of them sooner or later adopt electric cooking (except where gas is available at a still lower price). If three such tariffs are to be introduced and the charges shown on the same meter, it will be necessary to fix a certain energy consumption limit, on passing which the price falls, say, from 30 to 15 öre per kWh, and a somewhat higher limit, where the price drops, say, from 15 to 5—6 öre. It would be obviously incorrect to fix these limits of consumption at the same number of kilowatt hours per annum for the solitary occupant of a room with a tiny "kitchen corner" and for a large family in a flat with 6 to 8 rooms. In the study of social conditions, statisticians have introduced a "consumption unit", corresponding to an adult male, whilst a female is reckoned as e. g. 0.8 and a child as 0.5 "consumption units". Obviously, such units cannot be adopted in the distribution of electric power. Instead of this, we have created a "rate unit", which corresponds either to a normal living-room (or a kitchen), or else to 20—25 square metres of the gross floor space of the apartment. With the aid of these "rate units", the various consumers can, so to speak, be reduced to a common denominator.

It will then be found, with astonishing regularity, that 70 to 80 per cent. of those who use electric power solely for lighting purposes have a consumption of over 30 kWh per annum and rate unit, at the normal lighting rate. On the other hand, practically all consumers who use electric power for cooking purposes have a consumption of over 120 kWh per rate unit and year. In the normal tariff drawn up by the Tariff Committee of the Swedish Association of Electricity Undertakings the limits of consumption have accordingly been fixed at these figures.

In this tariff the initial charge is a "subscriber's fee" of 4 to 6 kronor, intended to cover the net costs of the electricity works for the meter itself, for the attendance it requires, and for accounting. The first 30 kWh per rate unit and year are charged at the normal rate for lighting, which now is about 25 öre in the larger towns, and 30 to 35 öre in medium-sized and small towns. The following 90 kWh cost 12 to 15 öre, and any power supplied in excess of that limit is charged at the rate of merely 5 to 6 öre per kWh. If the total sum charged per year is plotted as a function of the consumption of energy per rate unit, we shall obtain a broken line in the form of an open polygon. This tariff is accordingly called a "polygon tariff".

Besides the straight forward method of accounting already indicated, the "polygon" is sometimes divided into three different tariffs, namely (1) the ordinary tariff for lighting, where the basic fee is O — or may be regarded as equivalent to the "subscriber's fee"', (2), a basic fee of about 5 kronor per rate unit and a consumption charge of 12 to 15 öre per kWh, and (3) a basic fee of about 10 kronor per rate unit, and a consumption charge of 5 to 6 öre per kWh.

One condition which makes a purchase probable is that the sale price should be somewhere between the buyer's or consumer's valuation and the actual costs of the seller. Experience seems to show that the polygon tariff fulfils this condition, and gives, so to speak, a statistical average for the economic conditions in the distribution of electric power at low tension to normal household consumers in self-contained communities. This polygon tariff, in one form or another, has in fact been very widely adopted by Swedish municipal electricity undertakings as well as by distributing companies in a number of small places. The fact that these electric works make a nice profit on their distribution of power indicates that the polygon tariff lies considerably above the margin of actual costs. The fact that the consumption of electric power for household purposes shows a steady increase, and is relatively unaffected by economic crises, indicates that the polygon tariff, with an adequate margin, lies below the consumer's average valuation of electric power. Experts are now endeavouring to find an equally simple and accurate indicator of the economic conditions governing the distribution of electric power to "professional" consumers, that is, to shops, offices, workshops and small industrial enterprises.

DOMESTIC PRODUCTION OF LIQUID MOTOR FUEL

BY PROFESSOR ERIK HÄGGLUND

Developments in motor technique in the course of the last twenty-five years have, as we know, entailed profound changes in many fields, more especially in communications by land and water. The consumption of combustible oils for motors has thereby been increased year by year, and the increase during that period has been on quite a gigantic scale. This is clearly shown by the following figures for our importation of petrol:

Sweden's importation of petrol, mill. litres[1].

Year	Import	Year	Import
1915	20.6	1929	341.6
1916	27.3	1930	411.9
1917	4.6	1931	431.2
1918	2.6	1932	454.2
1919	31.9	1933	448.7
1924	126.0	1934	480.2
1925	184.6	1935	529.3
1926	204.6	1936	604.1
1927	225.7	1937	664.7
1928	314.9	1938	738.3

[1] For the years 1915—1927 the volume of importation is estimated on the basis of the import quantum reckoned by weight.

Thus in the course of the years 1915 to 1938 the consumption of petrol has increased 36 times over.

In other civilized countries the trend has been similar to that in Sweden, though only few can show such a rapid increase in the consumption of liquid fuels.

At an early stage, but particularly during the world war, the great importance of the domestic production of liquid fuel from a military point of view began to be realized. It is this consideration that has been the determining factor in the endeavours of certain countries to produce synthetic combustible oils from domestic raw materials. In this respect the rapid development of the *Bergius* and *Fischer* processes in Germany is significant.

In accordance with the first-mentioned method, coal or lignite is converted into fluid by treatment with hydrogen at a high temperature (400—500° C.) and with a pressure of 200 atmospheres. The best method for the operation of this process is to execute it in two stages with the use of suitable catalyzers (the IG method). In this way we obtain volatile hydrocarbons — petrol — as well as heavier oils. The petrol is of high quality. At the present time some 3 million tons of oils are being produced annually in accordance with the Bergius IG method. Plants for this purpose are in operation in England as well as in Germany, in course of construction in Italy and Japan. There are hydrogenation plants also in the United States — but there the basis is crude oil which is refined by hydrogenation under pressure.

The economy of this process is greatly dependent on the consumption of hydrogen gas, which in turn depends on the nature of the material employed.

Wood and peat, which are the only raw materials available in this country — as Höganäs coal, by reason of its large content of ash, is out of the question —, consume in the hydration process, owing to their high content of oxygen, far more hydrogen than lignite and coal and, as the carbon content is correspondingly low, yield less oil than those fossil fuels.

In the Bergius process the initial costs are immense, as the plants must in any case be of considerable magnitude, with an output of at least 100,000 tons of petrol and oils per annum. The erection of such a plant will entail a cost of some 150 million kronor, and the consumption of wood would be no less than about 3 million cubic metres. This approximately corresponds to the consumption in a chemical pulp mill with an output of 430,000 tons of pulp per annum, i. e. 3 times as much as the output of the largest Swedish mill (Östrand: 130,000 tons).

In the *Fischer* process the basis for the production of petrol is a mixture of carbon monoxide

and hydrogen obtained in gas producers of various kinds. This so-called synthetic gas can be produced not only from coal and lignite, but also from peat or wood — of course, from charcoal as well. The synthetic gas is led over a »contact mass» at atmosperic pressure or a certain overpressure, at a temperature of 200° C. The reduction and condensation reactions which then set in result in an oil mixture, from which petrol can be obtained by distillation. The Fischer process has likewise been rapidly developed in recent years, especially in Germany. The Fischer process, whether based on peat or wood, likewise entails immense initial costs, and the petrol obtained will apparently be more expensive than petrol obtained through hydrogenation.

As plants for the production of petrol from peat or firwood do not yet exist, it is difficult to estimate the price of such petrol, but presumably it will amount to at least 40 öre per litre.

As the hydration of tars and heavy oils under high pressure is relatively profitable, and as the initial cost of such a petrol plant would not be unduly large, it has been asked with good reason whether it would not be advantageous to proceed from peat and, as a first stage, subject it to a so-called "low temperature distillation". In this way we shall obtain, in addition to peat tar, the output of which may be estimated at 13 per cent., about 38 per cent. of coke, which might be sold as fuel. This question is still in course of investigation, a matter of a fundamental importance being the amount of peat that can be produced. To judge by experiments conducted in foreign countries on a large scale, it seems that this problem, which has long been under consideration, could be solved from a technical and economic point of view, at any rate under certain conditions.

Nevertheless it must be stated that the process from peat (or possibly wood) to petrol is still tedious and difficult. At all events it does not afford any possibility of a *rapid* solution of our domestic oil problem, especially if it is considered that the erection of Bergius IG or Fischer plants take several years.

The sulphite alcohol problem is far more hopeful.

The use of sulphite alcohol as a fuel for motors has in fact been seriously discussed on various critical occasions. In Sweden this was particularly the case during the latter part of the world war, when scarcely any other motor fuel was available. A number of sulphite spirits mills were then erected, several of which had not been completed by the end of the war. We did not know enough at first about the suitable composition of alcohol mixtures and the properties which wood alcohol should possess in order to be adapted for automobile engines. After the war, however, very useful work was done in this field. Thus the discovery that wood alcohol must first be dehydrated in order to be suited for motors in a mixture with petrol proved to be of epoch-making importance. The so-called *"light bentyl"*, which has been used in Sweden for many years, contains 25 per cent. by weight of alcohol, and in regard to consumption is quite equal in volume to petrol. In other words, the dehydrated spirit in the above mentioned mixture, reckoned by volume, has the same value as petrol. This is a remarkable fact, seing that the heat content of the spirit, reckoned by weight, is merely about half that of petrol.

Should it be necessary to eke out the petrol, up to 50 per cent. of spirit can be added without any appreciable deterioration.

It may be asked what will happen if peradventure *no petrol* should be available for admixture. Would it be possible in such a contingency to manage with sulphite alcohol alone? Those who remember the situation during the world war know that this is possible, though ordinary petrol motors will not give a satisfactory effect. Experiments have shown that Hesselman motors can be operated solely with alcohol.

In using sulphite alcohol solely we must be prepared for certain difficulties in starting the motor. If, however, the alcohol is mixed with *ether*, not only will these difficulties be completely eliminated; but a mixture with excellent technical properties will also be obtained. This mixture, especially if petrol is added, can be advantageously used for the operation of aero-engines.

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As ether can easily be produced, in various ways, from spirit, Sweden might be rendered completely independent of the importation of petrol, provided that sulphite alcohol was available in sufficient amount.

We thus find that sulphite alcohol is an excellent substitute for petrol.

This raises the questions: Are there prospects of producing sufficient quantities of sulphite alcohol in Sweden, how soon could this be realized, and what price could the sulphite alcohol fetch?

It is obvious that the raw material for the production of such alcohol must be wood. There are in fact various processes for obtaining from wood sugar solutions which can be fermented into alcohol.

This saccharification can be brought about with the aid of either concentrated or diluted mineral acids, in the former case at low temperatures, in the latter at temperatures of over 100° in a pressure container.

If, for example, we employ strong hydrochloric acid, all the carbohydrates in the wood can be converted into sugar. The saccharification is then complete. This is what takes place in the so-called Rheinau process, elaborated by the author in cooperation with German colleagues, and now developed on a manufacturing scale. In this case the sugar is obtained in a concentrated and partly crystalline form. Should it be desired to employ diluted mineral acids, a relatively satisfactory yield of sugar (about $^2/_3$ of the theoretical) can be obtained by heating at high pressures and temperatures with diluted sulphuric acid. This method also is practised in Germany on a considerable scale.

The amount of alcohol produced by such saccharification plants, if they existed in Sweden, would be, relatively speaking, very large, seeing that the capacity of each unit can be estimated at about 10 million litres. But, if the production of alcohol is to be started *rapidly*, none of these processes will serve the purpose, as a couple of years would elapse before the plants could be brought into operation.

The sulphite pulp process likewise involves a partial saccharification of the wood, and the resulting sulphite liquor, after fermentation, yields alcohol in varying amounts. This method of saccharification, however, entails considerable losses, as a large part of the waste liquor is left in the pulp formed in the boiling process. Moreover, in this process, as now operated, there is bound to be a considerable destruction of sugar.

This explains why the yields of alcohol, reckoned on the basis of the amount of wood consumed, are at present so low, even under the most favourable conditions. Nevertheless, in view of the fact that Sweden's production of sulphite pulp is on such a large scale, considerable amounts of alcohol can be obtained even with the present methods.

In this connection the following statistics of the production of sulphite spirit may be of interest:

Sulphite spirit, output and consumption.

1,000 litres 100 %.

Year	Output	Consumption			
		Sulphite alcohol	Technical spirit	For purification plants	Export
1918	3,380	1,664	1,309	—	—
1919	5,381	497	1,900	286	403
1920	7,753	—	586	4,786	4,294
1921	6,978	—	452	58	6,091
1922	5,945	32	538	400	3,216
1923	1,666	87	697	523	1,307
1924	3,230	167	1,995	859	1,168
1925	6,550	957	2,083	857	1,091
1926	6,975	2,409	2,676	655	929
1927	8,400	3,507	2,422	598	1,389
1928	7,288	2,584	2,957	763	852
1929	11,314	4,828	3,471	1,298	1,200
1930	15,782	7,661	4,383	1,135	476
1931	14,312	8,548	4,367	1,787	93
1932	11,395	3,946	3,829	1,972	42
1933	18,990	8,038	5,456	1,809	106
1934	22,580	12,516	5,652	1,738	45
1935	25,478	14,319	4,998	1,982	78
1936	25,348	14,393	6,633	2,280	95
1937	26,875	17,033	8,840	1,780	82
1938	27,263	20,272	9,741	1,287	73

The above figures by no means show the real capacity of the sulphite alcohol mills, seing that hitherto considerable amounts of sulphite waste liquor have been tapped into the water owing to the limited market for the alcohol. Assuming that the mills are working at full capacity with the present methods of operation, we can reckon

with an output of 37 million litres of 100 per cent. alcohol.

By washing the digesters it is estimated that this amount could be increased to about 46 million litres, provided, of course, that all the sulphite mills which produce spirit could be kept in full operation.

Sulphite alcohol as we know, is not produced at all sulphite mills. Mills where the output of pulp is too small will not serve the purpose, as the fixed costs of production would be unduly large. With present methods the margin of profitability may be put at an annual production of 15 thousand tons of pulp. The existing number of sulphite alcohol mills might thus be doubled, namely from twenty to forty. The additional amount of alcohol thereby obtained may be estimated at 30 million litres.

Thus, all in all, it should be possible in Sweden, without changing the boiling process, to produce 76 million litres of spirit.

As indicated above, sugar is destroyed in the boiling process, in amounts varying according to the conditions in which it is carried out. In certain cases this destruction of sugar may exceed half of that primarily formed. Hence, in endeavours to produce the largest possible amount of spirit per ton of pulp, it must be considered to be highly necessary to devise some means for performing the boiling process in such a way as to obviate the destruction of sugar.

The author, in association with several collaborators, has in fact devised a method for solving this problem by performing the boiling process in two stages. If this method is introduced in practical operation, it should be possible, according to the results of laboratory and mill experiments, to increase the amount of spirit from 76 to *120 million litres per annum.* This latter figure is estimated on the basis of an output of pulp reduced by 18 per cent. By certain supplementary arrangements in the boiling plants, which render it possible to produce at full capacity in accordance with the new boiling method, the total amount of spirit could be increased in a corresponding degree, namely to 142 million litres per annum. As the sugar content in the waste liquor thus obtained corresponds to an output of spirit amounting to 9—10 litres per cubic metre, the costs of the production of spirit should not be appreciably larger than at present (without washing the boilers), provided, of course, that the cost of coal does not rise.

It may be objected to all these calculations that they are based on the assumption that the sulphite mills can work at full capacity. It may, of course, be questioned, whether this would be possible in case a corresponding market for the pulp could not be obtained. Pulp shipments will presumably be considerably restricted in consequence of the war. Though is it conceivable that pulp might be stocked to some extent, this would entail certain drawbacks; for example, on a return to normal conditions the large stocks of pulp would glut the market for a long time to come.

Should pulp not find an adequate market, or should the demand for sulphite spirit exceed the above estimated output, the sulphite mills might reorganize their production so as to obtain the largest possible amount of spirit regardless of the output of pulp. In that case, however, the pulp would be unsuitable for the uses to which it is otherwise put, namely for paper and rayon. It is conceivable that a certain amount of pulp might be used as a feeding stuff. If it came to the worst, it might be used, after drying, as fuel for the mills.

It may be asked what amount of spirit could be produced in a situation like this. Though practical experiments have not yet been conducted, the investigations hitherto made on a laboratory scale show that a considerable increase in the yield of spirit from the wood could be obtained. In this case likewise it is desirable that the mills should adopt the two-stage method. Even with the existing sulphite mills we can reckon with an output of about 125 million litres of spirit, and if the number of mills were doubled, it would be possible to produce *200 million litres of 100 per cent. spirit per annum.*

We shall thus obtain a suficient quantity of liquid motor fuel to meet actual requirements. In case of emergency, the existing stock of petrol might then be entirely reserved for military purposes.

Spirit obtained by such brutal methods will

obviously be expensive to produce, as the entire costs of operation and of the wood would be borne by the spirit. But even then sulphite alcohol would certainly not be unduly expensive.

Furthermore, seeing that such enlargements and alterations as would be necessary for such an increase in the output of spirit could be carried out in a comparatively short space of time, there seems to be no reason to view with undue anxiety the question of the supply of liquid motor fuel.

This account would not be complete if no mention were made of other proposals for the production of liquid motor fuel.

It has, for example, been suggested that the problem might be solved by the total heating of the wood substance at a high temperature and pressure with alkalies, sodium hydrate or lime, and the dry destillation of the lye thus obtained. In this process we shall obtain a number of organic compounds which could undoubtedly be used for the driving of motors.

In regard to this suggestion it need merely be stated that, even if the methods were sufficiently perfected to be used in practical operation, which may be questioned, we must be prepared to find that these fuels will be very expensive. It may further be observed that such plants would take a long time to erect and bring into operation. Under such conditions this solution of the motor fuel problem cannot be seriously contemplated.

It has also been asked whether it would not be practicable to saccharify wood in the sulphite digesters with diluted sulphuric acid at such a pressure as the digesters could withstand. In this way sugar solutions suitable for fermentation might obviously be obtained. As laboratory experiments have shown, the amount of spirit thus produced may, under certain conditions, be considerably larger than that obtained by boiling with usual cooking liquor. Nevertheless, this method is attended by great technical difficulties, which have not yet been solved. Under all conditions such a spirit would be very expensive to produce. Hence this suggestion, in the author's opinion, is of no immediate interest.

THE FINANCING OF PENSIONS FOR WORKERS

BY EINAR HUSS, D. SC.

In the balance-sheets of Swedish industrial companies in recent years expenditure for the pensioning of employees has played an increasingly large part. These items, as a rule, include not only current expenses for pensions already granted, but also, and on a considerable scale, the reservation of monies for future expenditure on pensions, either by the payment of insurance premiums or in some other way. As a general rule this funding is intended for the pensioning of officials, whilst similar measures in regard to the pensioning of workpeople have for the most part been deferred. The chief reason for this postponement has been the desire for adjustment to the national pensions insurance system: it was in fact considered necessary to await the new legislation quite recently adopted in this field and the establishment of a suitable insurance practice, which in the last resort will be the determining factor both in actual pensions insurance and in the systematic accumulation of pension funds in other ways.

Seeing that the pensioning of workpeople requires far more capital than the provision of pensions for officials, we find ourselves merely at the beginning of a course of development which, if continued on the lines hitherto followed, is bound to lead to still greater expenditure for industrial companies and to a very large accumulation of funds, which may entail injurious effects on the capital market. Attention has been drawn to these matters in the preceding numbers of this Quarterly, issued this year.

It may, perhaps, be considered inopportune, in the present situation of the world, to discuss things like this. But especially at a time when a more or less lasting and far-reaching destruction of capital is to be anticipated, we may be warranted in examining whether it is really necessary that so large a part of future savings, for reasons which to some extent are merely formal, should be set aside for a specific purpose and, owing to rigorous regulations in regard to investment of funds (with priority for investments in Government and municipal bonds) should be prevented, in some measure, from being put to productive use.

To begin with, it may be useful to investigate to what extent the accumulation of funds for future expenditure on pensions may be desirable from the employer's point of view. Here and in the sequel it is assumed that the right of employees to receive a pension has been established either by an express undertaking on the part of the employer, or by practice. For simplicity's sake, pensions for the surviving widow and children of the beneficiary will be left out of account, and as regards the old age pensions of employees themselves only the way in which the expenditure is financed will be discussed.

The patriarchal attitude which employers had long adopted in regard to the pensions problem was due to the fact that they had not yet realized the great financial importance of that problem. Owing to industrialization and the concentration of the factory system in larger units, the staff of industrial workers, especially in the big companies, has increased many times over in the course of a generation. In view of changes in statistical methods, only approximately comparable figures can be given for the number of industrial workers for a considerable range of time. With due allowance for this disparity, it may be stated that the number of industrial workers in 1875 was 115,000, in 1900 296,000 and in 1937 536,000. In surveying this period we shall find that the number of beneficiaries has been quite small in proportion to the number of existing workers. This is due to the fact that these pensioners were persons who

had taken up employment some forty years back, when the staff was far smaller. At that time it was comparatively easy to provide for these comparatively few superannuated employees either by a pension or by light work with pay, housing facilities, etc. But, according as the expansion of companies has slowed down or has completely ceased, the number of pensioners has tended to increase both absolutely and in proportion to the size of the existing staff. The provision of pensions has thus become a problem of considerable magnitude, which often has been intensified by industrial concentration.

This tendency — the relative increase in the number of pensioners — will doubtless continue for some twenty years to come; for it can scarcely be expected that the number of employees will proceed to increase at the same pace as before. In the commercial banks, whose short period of expansion mainly coincided with that of the Great War, 1914—1918, it has been estimated that expenditure on pensions will rise in a steep curve up to the beginning of the nineteen-sixties, when the number of pensioners will be five or six times larger than now, whilst the volume of business and the number of employees cannot be expected to have shown a coresponding increase. Similar conditions apparently prevail in a number of industrial companies. The mere equalization of this swelling in the cost of pensions during the next twenty years or so will thus be a serious financial problem. The method of disbursing pensions year by year direct from the expenses account — which may be termed the *distribution method* — can, of course, be supplemented by the accumulation of funds for the equalization of fluctuations in the annual disbursements. It is evidently in the interest of employers to make provision for these outlays in advance.

The "distribution method", however, cannot forthwith be adopted by a private company, seeing that the payment of pensions may be jeopardized if the company falls into financial straits. As it is of essential importance that the due payment of pensions should be safeguarded, the question arises whether the "distribution method" can conveniently be supplemented by some arrangement for this purpose, or whether some other system for financing pensions is to be preferred.

The rapidly increasing adoption of the *insurance method* in the pensions system is doubtless largely due to the consideration that the pensions are thus safeguarded, in that the due payment thereof is guaranteed by an institution independent of the employer. In order to render this possible, it is obviously necessary that fees or premiums should be paid to the insurer for the accumulation of a fund of such magnitude that the interest on it will suffice for the due provision of pensions for beneficiaries. But this in turn entails a marked increase in the employer's expenditure. Besides defraying the costs of pensions which are actually being paid, he has to provide for the accumulation of an insurance fund for all the employees entitled to a pension. For financial reasons, it has frequently occurred that the pensions granted to the older employees have been on a considerably smaller scale thant those payable to their younger fellow-workers, and that their pensions are not safeguarded by insurance, but are paid direct by the employer. A somewhat similar arrangement has been adopted also in the national pensions insurance system. It may therefore be said that it is, in some measure, at the expense of the older generation that funds are being accumulated for the old age pensions of future generations.

It should further be observed that pensions insurance involves dispositions for meeting expenditure which must be estimated a long time in advance: this, of course, is a difficult matter. When the accumulated fund is to be used for its purpose, the general level of interest may have fallen, so that the fund does not give the estimated yield. Furthermore, the purchasing power of the currency may also have fallen, with a corresponding reduction in the real value of the pensions. Where the "distribution method" is adopted, these drawbacks may be of minor importance.

Finally, it should be borne in mind that the insurance method tends considerably to increase the employer's expenditure also in other ways.

The funds of the insurance companies and offices are invested in certain kinds of securities which are considered to be particularly safe and give a low yield: and this yield is further reduced owing to the growth of the insurance funds, which entails the need of additional investments. Thus at the present time the employer has to pay premiums calculated on the basis of an estimated yield of $2^1/_4$ to $2^1/_2$ per cent., whilst the capital employed in the employer's own enterprise, as a rule, carries a considerably higher rate of interest. In other words, the employer supplies capital at a rate of interest which in many cases is considerably lower than that which he reckons with for his own borrowing.

In view of the general adherence to the "classical" insurance method, often adopted as a matter of course, it is scarcely surprising that this method — especially with a view to guaranteeing the due payment of the pensions — should have been taken as a basis for legislation on the subject. I do not propose, however, to discuss the results attained or the proposals made in this line (Law relating to pension funds, the proposal that joint-stock companies should be under obligation to include "indebtness for pensions" as a liability item in their balance-sheets, etc.).

It should be noted that the objections raised in insurance circles against the "distribution method" are not based on principle: the only reason for their opposition to this method is the fear that the difficulties in practice may be insuperable. Certain measures for reducing the accumulation of capital in pensions insurance have, however, been taken or proposed.

In the national pensions insurance system it has been found possible to introduce the "distribution method". In this case the stipulated benefits need not be safeguarded by the existence of sufficient reserve funds. Indeed, if we imagine that the entire funds were invested in Government bonds and that all these bonds were afterwards destroyed in a fire, the security for the due payment of the pensions would be as great after the fire as before, in that the State has guaranteed that the pensions shall be paid as prescribed by law. In 1937 the national pensions fund was in fact limited to a maximum of one milliard kronor, and it was prescribed that the fund, before reaching this maximum, might be increased by at most 20 million kronor per annum.

The fact is that the national pensions fund, if permitted to grow unchecked, would eventually amount to several milliard kronor. The undesirable effects of the accumulation of such a gigantic fund have been realized, and it is considered that they must be avoided. But it should be noted that in case the pensioning of workers is generally introduced, the accumulation of funds, as also its injurious effects, will be of about the same magnitude. True that the pensioning of workers would be on a less extensive scale; on the other hand, in the pensioning of workers we must reckon with a less advanced age (the national pensions are payable at the age of 67), additional benefits (family pensions) and higher rates for the old age pension. The conclusion is that the introduction of the "distribution method" in the pensioning of workers is an important matter of general interest. It is in fact in the interest both of the employer and of the wage-earner, seeing that the adopting of a pensions system is thereby cheapened and otherwise faciliated.

In surveying the lines of development which are thus opened, we must first delimit that part of the pensions system within which the "distribution method" may be applied. In accordance with the present regulations, national pensions are not payable to those who are in receipt of other pensions above a certain limit, namely 300, 350 and 400 kronor, respectively, in the different local areas, and in addition 100 kronor, if the person is not in receipt of any income from another source. For persons with private pensions within this limit the maximum of the aggregate pension (exclusive of certain State "basic pension") will be 650, 800 and 950 kronor, respectively, in the different local areas, after reaching the age of 67. In this case it remains for the private pensions system to supplement the national pension by

(1) additional old age and disablement pension from the age of 67 and within the above indicated limit,

(2) old age and disablement pension from a lower age, e. g. 60 or 65 years,

(3) family pension, mainly pensions for widows (provision having already been made for state allowances for children).

As it is obviously out of the question to interfere with the working of the national pensions system, the private pensioning of workers will as a rule be sustained by such supplementary private pensions systems. We shall thus presumably be soon confronted with a variety of collective pensioning systems, for the administration of which a modification of the classical insurance method is desirable, by the introduction of the "distribution method" and by simplified technical arrangements in other respects. Such insurance systems might be financed by fees payable by employers and workers; and the question of safeguarding the payment of the pensions might perhaps be settled by arranging that the insurances should be administered by a single insurance office, and that the fees should include a margin to cover the risk of default owing to the bankruptcy of the employer. As Dr Åkesson, Inspector of the Insurance Companies, has pointed out in a proposal for obligatory pensions insurance for all wage-earners in private service, there are also other methods which deserve consideration.

A detailed discussion of these questions is beyond the scope of this article, which is merely intended to draw the attention of the economically interested outside insurance circles to a financial problem of the first magnitude, the solution of which is of general and vital interest.

THE ECONOMIC SITUATION DURING THE THIRD QUARTER OF 1939

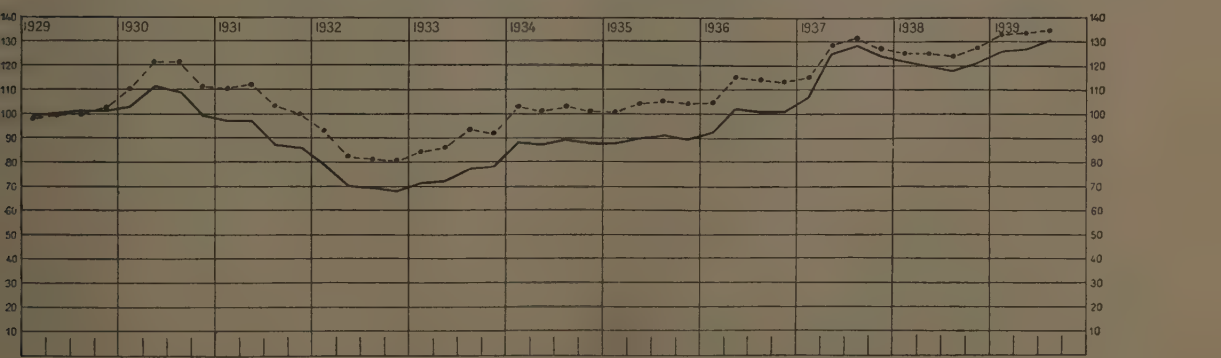
The General Situation. The outbreak of war on the 1st September 1939 interrupted a period of slowly rising boom. Statistics from industry, building and agriculture show that employment before that date had begun to approach, and in certain cases had actually exceeded, the previous record level in the year 1937. Unemployment in the trade unions showed lower figures than had been recorded for many a year, and difficulties were encountered by certain industries in obtaining skilled labour. On the loan markets, as before, the supply of capital was larger than the demand, and the rates of interest on loans were still extremely low. There was still, however, a dark spot in the picture, and that was the situation of the chemical pulp industry. During the first eight months of this year both exports and imports have reached new records, and the imports were about 20 per cent. larger in value than during the same period last year, which was partly due to the purchase of goods abroad as reserve stores.

As compared with all previous years from, and inclusive of, the peak year 1929, new records were reached for the first eight months in regard to the export of machinery, pig iron, wrought iron and steel, iron ore and mechanical wood pulp. The shipments of wood goods during the same period this year amounted to 493,000 standards, as compared with 352,000 and 487,000

	Imports	Exports	Surplus of exports (+) or surplus of imports (−)
	Million kronor		
Jan.—Aug. 1929	1,098	1,108	+ 10
» » 1930	1,092	1,016	− 76
» » 1931	913	692	−221
» » 1932	739	570	−169
» » 1933	682	638	− 44
» » 1934	822	794	− 28
» » 1935	910	801	−109
» » 1936	1,014	925	− 89
» » 1937	1,355	1,215	−140
» » 1938	1,302	1,185	−117
» » 1939	1,559	1,250	−306

Business Activity Index of the Skandinaviska Banken.

Season adjusted index numbers relating to the clearing turnover (1929 = 100).



——— Original figures referring to the value of the clearing.

- - - - - - - - Quantity figures (after re-reckoning on the basis of the average ot the wholesale price and the cost-of-living indices

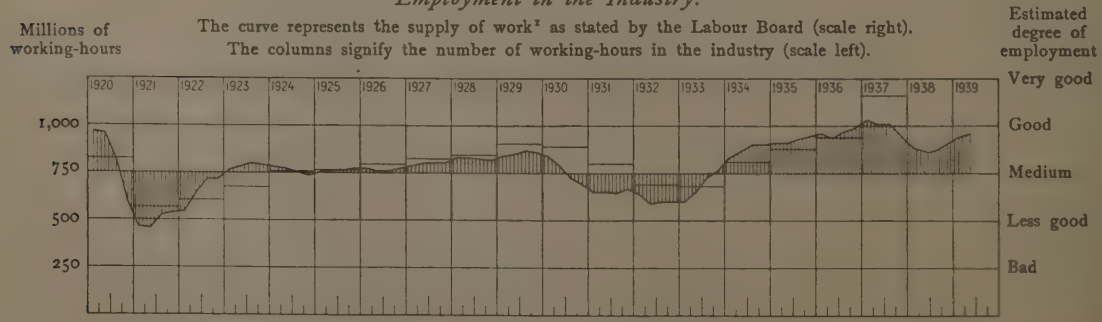
standards, respectively, during the first eight months of 1938 and 1937. The export of chemical wood pulp was nearly on the level of 1936 and approximately 10 per cent. larger than last year. As for the volume of business within the country, it is significant that the business activity index of the Skandinaviska Banken, which shows the value of the clearing of commercial paper, for the third quarter of this year rose to 131.0, thus surpassing the peak figure hitherto reached, 127.7 during the third quarter of 1937. It should be noted that this index number comprises also the first month of the war, during which no falling tendency could be observed in these statistics. In regard to the general trend in industry during September, it is so far merely known that various disturbances have occurred, and that signs of recession have been noticed chiefly in the building industry, owing to a rise in interest charges and increases in the prices, or shortage, of building requisites.

When the news of the war arrived, its natural effects were: stoppage of shipments, uncertainty regarding the maintenance of imports and exports and other economic disturbances: sale contracts were annulled, difficulties were experienced in calculating the costs of production and thus also sale price, and some reductions of staff were entailed by the calling up of conscripts for neutrality defence service. In spite of the measures of precaution that had been taken by the Swedish authorities, and though Sweden's position in regard to supplies was, generally speaking, favourable, large sections of the public, alarmed at the prospect of a coming shortage of household goods, began hoarding on a considerable scale. The resulting disturbances in the distribution of goods and in traffic were greatly aggravated when the Government found it necessary, in order to ensure the supply of special requirements, to take measures for drastically restricting the consumption of motor fuel, which severely affected local and long-distance traffic, despite of the arrangements made for replacing automobiles by other means of transport.

Shipping is being adjusted to war conditions, but freights have risen very considerably, owing to war insurances, higher rates of pay, increases in the cost of fuel, etc. Furthermore, the transport of goods has been delayed and a shortage of tonnage has arisen, as part of the international merchant fleet is now debarred from participation in regular commerce. Towards the last week of September shipments of import and export goods were proceeding on a somewhat larger scale. Great uncertainty, however, prevails in regard to the character and probable effects of of the belligerents' contraband policy, and thus also regarding the nature and scope of the duties to be discharged by the many wartime boards which have been set upp in Sweden for the regulation of economic conditions during the war.

The monetary policy pursued by Sweden in this critical situation has been governed by the rules laid down by the Riksdag, in accordance

Employment in the Industry.


Millions of working-hours
The curve represents the supply of work[1] as stated by the Labour Board (scale right).
The columns signify the number of working-hours in the industry (scale left).
Estimated degree of employment
1920 1921 1922 1923 1924 1925 1926 1927 1928 1929 1930 1931 1932 1933 1934 1935 1936 1937 1938 1939
1,000
750
500
250
Very good
Good
Medium
Less good
Bad

[1] The season variations have been eliminated.

Exports	Wood Goods 1,000 m^3	Wood Pulp (estimated air-dry weight 1,000 tons)				Paper and Pasteboard 1,000 tons
		Mechanical	Sulphite	Sulphate	Total	
Jan.—Aug.						
1929 . .	3,535	183.5	555.1	278.8	1,017.4	302.38
1930 . .	3,335	169.6	494.3	217.8	881.7	284.81
1931 . .	2,051	151.8	391.9	249.2	792.9	293.43
1932 . .	2,025	110.5	272.5	197.1	580.1	314.61
1933 . .	2,713	202.3	514.4	363.7	1,080.4	329.07
1934 . .	2,711	202.5	557.5	400.9	1,160.9	359.57
1935 . .	2,143	182.0	576.7	415.2	1,173.9	399.84
1936 . .	2,255	205.7	674.1	497.8	1,377.6	398.18
1937 . .	2,430	207.4	812.7	570.3	1,590.4	437.92
1938 . .	1,855	181.1	606.6	396.9	1,184.6	297.76
1939 . .	2,514	210.0	670.7	445.0	1,325.6	405.00

Exports	Iron Ore 1,000 tons	Pig Iron etc. 1,000 tons	Wrought Iron and Steel 1,000 tons	Workshop[1] Products Mill. kr.	Butter tons	Bacon tons
Jan.—Aug.						
1929 . .	6,863	69.50	91.05	71.1	16,238	13,277
1930 . .	6,907	48.24	66.38	82.3	18,432	18,469
1931 . .	3,075	38.09	48.44	58.3	14,017	21,107
1932 . .	1,368	25.21	39.36	44.6	9,296	15,151
1933 . .	1,632	58.97	43.92	38.6	9,917	14,077
1934 . .	4,244	63.29	67.67	49.8	15,984	13,649
1935 . .	4,898	57.63	66.25	53.9	15,282	9,074
1936 . .	7,211	65.27	73.19	57.6	12,220	8,856
1937 . .	8,926	79.40	91.96	70.3	15,640	9,174
1938 . .	9,315	79.33	96.49	76.9	21,085	8,995
1939 . .	9,365	115.48	93.60	82.8	18,680	12,157

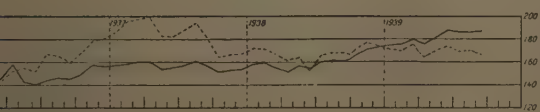
[1] Includes only the products of large exporting workshops.

with which the aim in view should be the maintenance of a fairly stable level of prices. The Swedish krona has accordingly been freed from its pegging to the pound sterling, and has been linked, instead to the dollar, at a rate of kr. 4: 20, as compared with about kr. 4: 15 on an average for the first eight months of the year. The pound sterling rate, which had averaged about kr. 19: 42 during that period, fell in September to a bottom figure of kr. 15: 90 and at the end of the month was kr. 16: 95, which is equivalent to a fall of about 12.7 per cent. As almost all sawn wood goods and large amounts of wood pulp had previously been sold in pounds for delivery a long time ahead, the Swedish exporters can, it seems, scarcely escape losses on the exchange, though hedging operations have occurred, and though some of them may have obtained exchange compensation from their customers.

Seeing that the krona has been linked to the dollar, the stability of the Swedish price level will now depend on the maintenance of such stability in the United States. It should, however, be observed that, according to Moody's index, primary product prices in America had risen by 20—25 per cent. from the end of April to the end of September. But, even if price stability could be maintained in America, a "local" price advance must be anticipated in Sweden. For, firstly, owing to increases in freight rates, there is bound to be a rise in the prices of imported goods in general; secondly, we must be prepared for considerable increases in the prices of those commodities for which, in time of war, there is a special demand on the world market: and this price advance will, of course, become more marked if Sweden requires to import large amounts of such commodities. In regard to foodstuffs Sweden is largely self-supporting, except for certain goods required by farmers. Sweden also

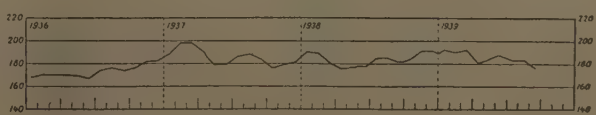
Share Index Numbers.

Industry.



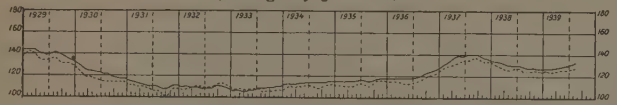
Home Market Industry.
Other Industry.

Banks.



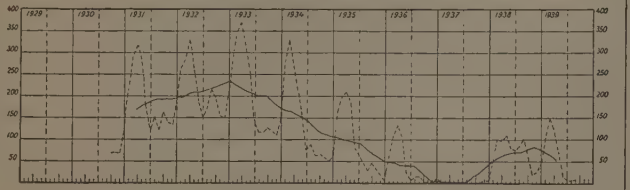
Price Index of the Board of Trade.

——— = all goods.
- - - - - - - - = raw products.
(Average 1913 = 100.)

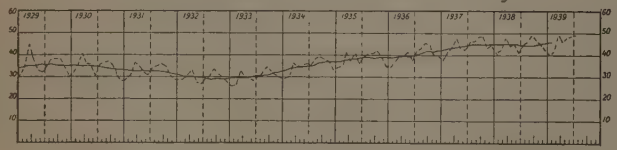


Laid up Swedish Tonnage.

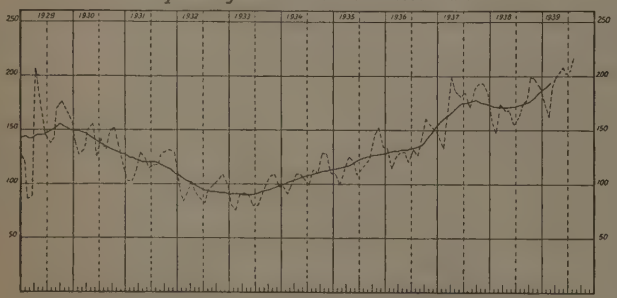
(1,000 tons gross)



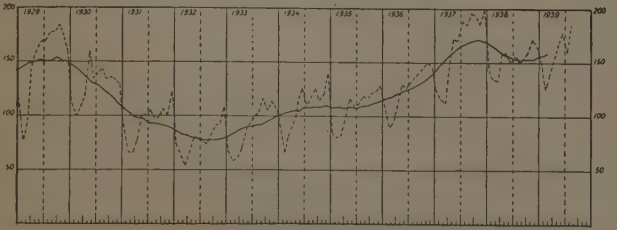
Millions of Axle-Kilometers travelled by Loaded Goods Trucks on the State Railways.



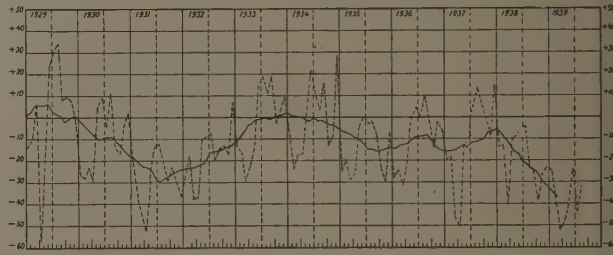
Import of Sweden in Mill. Kr.



Export of Sweden in Mill. Kr.

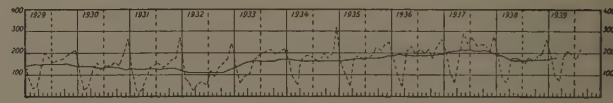


Monthly Import Surplus (−) or Export Surplus (+) in Mill. Kr.



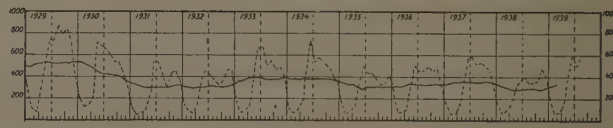
Export of Paper Pulp.

(Estimated air-dry weight in 1,000 tons.)



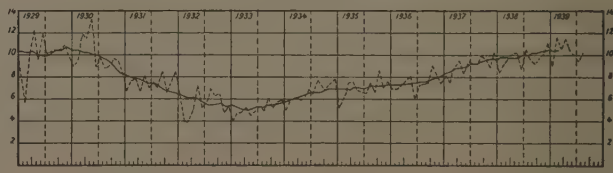
Export of Woodgoods.

(1,000 m³.)



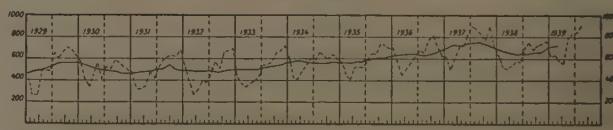
Export of Products of the Engineering Works.

(Mill. kr.)



Import of Coal and Coke.

(1,000 tons.)



Everywhere except the first in diagram the dotted line indicates the original figures and the solid line the moving 12 months' averages.

Share Index.	1936	1937	1938				1939									
	Jan.	Jan.	Jan.	April	July	Oct.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sep.	Sep. 29th
Home industry	138	157	158	152	160	166	175	176	180	177	182	188	187	186	187	178
Other industry	134	186	172	161	166	171	171	170	176	165	170	174	169	170	167	154
Of which																
Grängesberg	78	177	219	188	200	192	191	180	194	169	182	186	178	183	173	160
Exporting engineering industry	167	223	196	186	193	198	195	192	197	188	194	194	188	188	178	167
Other, including iron and steel ind.	148	196	173	161	167	177	181	181	189	174	181	185	182	183	183	167
Wood-goods and pulp-ind.	108	146	131	120	123	127	124	126	129	119	122	128	127	127	125	118
Mixed wood and iron ind.	143	186	176	182	181	192	200	199	213	208	208	210	209	210	222	192
Banks	168	189	191	176	184	184	192	190	192	181	184	188	183	184	177	168

Note. Where not otherwise stated, the figures are for the middle of the month.

imports large amounts of coal, oils and metals. In order to check tendencies towards a rise of prices and prevent it being passed on to other goods than those primarily affected, it may be found necessary, in one way or another, to restrict general consumption and divert it into useful channels, that is, to goods which are really necessary. Up to the present, however, no noteworthy general price advance has been recorded.

Some lowering of the national standard of living will, it seems, be necessary also in view of extraordinary expenditure on defence. The magnitude of that expenditure cannot at present be correctly estimated. The budget for the financial year ending 30th June 1940 provided for a defence expenditure of roughly 350 million kronor. In order to cover additional non-recurring expenditure on defence it will apparently be necessary to provide about 250 million kronor, and roughly 300 million kronor will presumably be required to cover current expenditure up to the end of the financial year. The total will thus run into about 900 million kronor, of which 550 million kronor represent new expenditure.

The Government plans for covering this large expenditure are, at the time of writing, not known: it may be presumed, however, that the Minister of Finance, after drawing on the balance in the Budget Regulation Fund, now amounting to about 170 million kronor, will have recourse to borrowing, as well as to direct and indirect taxation. Moreover, it seems evident that we cannot avoid some retrenchment in ordinary State expenditure, based on a general overhaul of previously voted grants. It should further be noted that the adjustment of salaries by granting full compensation for the increase in the cost of living means that the class thus compensated will throw onto other groups their share in the increased burden of direct and indirect taxation.

In spite of the fact that the rate of taxation is already high, it is estimated that the tax on income and capital will not yield more than about 350 million kronor. The possibilities of deriving additional revenue from this source are therefore limited. An excess profits tax is announced, but the revenue it could produce will for a long time be beyond calculation.

In regard to State borrowing, it should be noted that the national debt is estimated to be placed in this country to the extent of roughly 95 per cent.; and that the interest on the national debt during the financial year 1937—1938, namely 88.2 million kronor, amounted to barely more than half of the revenue derived from the so-called State productive funds, viz. 165.9 million kronor. Recourse to borrowing thus simply means that the State, for the payment of the interest on a defence loan, is drawing on some part of the net profit on its commercial undertakings. Even if it is borne in mind that part of this profit, for example in regard to the Post Office, must be classed as revenue from taxation, and that the profit may be considerably re-

duced owing to a trade recession, it seems scarcely probable that the interest charges on the national debt will involve any immediate heavy burden to the tax-payers.

The money and capital markets in Sweden, as in other countries, have now evidently been tightened. Owing to the abundance of capital and the very large liquid funds held by the commercial banks, Sweden, on the outbreak of the war, was in a very favourable financial position. A moratorium has not even been contemplated, except for the benefit of those who, in consequence of the restrictions on automobile traffic, had been unable to meet their engagements under hire-purchase contracts for motor cars.

Hoarding and the calling up of conscripts, in conjunction with a collection of tax, entailed an unusually large demand for cash, especially during the first half of September. Setting aside seasonal fluctuations the note circulation thus increased from the middle of August to the middle of September by about 150 million kronor or by 15 per cent. This increase was also due to State expenditure for military and other purposes. During the latter half of September, however, the note circulation was again reduced, if seasonal fluctuations are eliminated.

Withdrawals of deposits with the commercial banks have not amounted to particularly large sums, though, as per the end of September, the banks, presumably, will show less excessive cash reserves than previously. And there has been no general rise in bank rates of interest. But, in view of the trend of interest rates for long loans, the interest on short loans on the security of mortgages has been raised somewhat. The agreements regarding the interest rates on such loans which had previously been concluded between commercial banks, savings banks and insurance companies expired on the 15th September and were not renewed. Some further cooperation in this field has, however, been agreed upon.

On the capital market, on the other hand, rates of interest were immediately raised. From the middle of August to the middle of September the interest on gilt-edged bonds had risen from about $2^{3}/_{4}$ to $3^{1}/_{2}$ % for long loans at low interest; and for first-class industrial bonds from about 3% to between 4 and $4^{1}/_{4}$ % in regard to low per cent. loans with a medium life (about twenty years). As for loans with a higher nominal rate of interest than 3.5 or 4 %, respectively, or with a shorter life, buyers as a rule apparently require a better yield, in that, for example, 4 per cent. gilt-edged bonds falling due for repayment within a few years are being quoted at or roundabout par. A similar trend has been observed on the mortgage loan market, where the interest charged on loans tied up for ten years had risen from somewhat over 3 per cent. to 4 per cent. or more.

In other European neutral countries the interest on bonds has likewise risen and is still on a considerably higher level than in Sweden. Representative low per cent. Government loans in such countries yielded at the middle of September, approximately as follows:

in Denmark	4.80 %
» Norway	4.85 %
» Finland	5.45 %
» Holland	4.00 %
» Switzerland	4.50 %

The corresponding figure for Sweden was, as above stated, 3.5 per cent.

The Stock and Bond Markets. The stock exchange at Stockholm was not closed owing to the outbreak of war. But, for other reasons, the Exchange, as had been the case during the summer, has been kept closed on Saturdays.

A system of "minimum prices" for shares and bonds was introduced on the stock exchange on the 1st of September. The rule was laid down that there should be no quotation for any seller's price which was below the buyer's price on the 31st of August and no quotation for any buyer's price for shares which was 10 per cent. or more below the price on the 31st of August; in regard to bonds the corresponding limit was at first fixed at 5 per cent. The margin for bonds, however, has subsequently been extended to 10 per cent., and for low per cent. gilt-edged loans (at a nominal interest not

exceeding 3 %) at about 12 per cent. (2 per cent. below the quotations on the 20th of September).

In regard to shares, the trend of prices on the stock exchange had soon put this system out of operation. There was at first a considerable fall of share prices, though it scarcely exceeded the fall during the crisis in September 1938. Subsequently, however, share prices recovered very considerably: indeed, there was a marked rise in those shares which are particularly sensitive to war conditions, especially shipping shares. It may be said in general that by the middle of September share prices had risen, on an average, to almost the same level as previously during the year. Towards the end of September, however, there was a further drop in share prices. The trend is shown by the following tables and diagrams, which give the average prices, in percentage of par, for certain groups of shares listed on the stock exchange.

As regards bonds, the drop in prices at the beginning of September has been substantially maintained, in that a further fall was balanced towards the end of that month by a firmer tendency. The trend is shown by the table below, which gives approximative figures for the yield (in percentage) corresponding to the market value of representative Swedish bond loans during the last few months.

	Number of loans	1939 14/3	14/4	16/5	16/6	14/7	15/8	15/9	29/9
Swedish Government.									
3 % 1934–. Conv. 1944	1	2.22	2.55	2.53	2.57	2.92	2.76	3.44	3.44
3 % 1937–97. Conv. 1947	1	2.33	2.55	2.55	2.61	2.91	2.83	3.49	3.46
Mortgage Banks.									
3 % Conv. 1944—47 . . Repayment 1999–2009, at latest.	4	2.31	2.52	2.53	2.60	2.93	2.87	3.50	3.48
Municipalities.									
3, 3¼ and 4 % Conv. 1943—46 . . . . . Repayment 1956–1966, at latest.	3	2.46	2.62	2.55	2.54	2.80	2.90	3.67	3.75
Industrial Companies.									
3¼ % 1937–57. Conv. 1947	3	2.78	2.77	2.77	2.77	2.78	2.93	4.21	4.46
3½ % 1937–62. » 1947	1	2.84	2.91	2.94	2.88	3.05	3.05	4.05	4.16
4 % 1935–55. » 1945	1	2.85	3.04	2.94	2.94	3.21	3.21	4.04	4.04

The following is a list of the principal bond loans issued during the quarter:

Issued by	Interest rate in %	Face value in kronor	Issue price in %	
Swed. Mortgage Bank	3			[2]
» Residential Mortgage Bank Ser II	3	10,000,000		[2]
A.-B. Stockholms Tomträttskassa	[1]	6,000,000		[3]
Sulfit A.-B. Göta	3½	1,500,000	100	[4]
Uddeholms A.-B.	3	25,000,000	100	[4]
Ölands Cement A.-B.	3¼	1,200,000	100½	[4]
Örebro Pappersbruk A.-B. . . .	3	2,000,000	100	

[1] Varying rate of interest. — [2] Being sold privately. The amount of the loan not fixed. — [3] Being sold privately. — [4] In connection with the conversion of a previous loan.

Some Statistical Data Concerning

Currency Reserve, Stock of Gold, Note Circulation.

	Net Claims of Banks on Foreign Countries million kronor (End of month)									The Riksbank's								
										Stock of Gold[1] (million kr.)			Stock of Gold and Net Claims on Foreign Countries[1] (million kr.)			Note Circulation (million kr.)		
	Riksbank			Commercial banks			Total											
	1937	1938	1939	1937	1938	1939	1937	1938	1939	1937	1938	1939	1937	1938	1939	1937	1938	1939
Jan.	734	972	695	74	— 55	—15	808	917	680	945	948	1363	1679	1920	2058	804	880	953
Feb.	818	921	675	— 41	— 38	—19	777	883	656	949	981	1364	1767	1902	2039	797	870	943
March	831	866	660	— 78	— 19	—21	753	847	639	950	1013	1367	1781	1879	2027	826	898	973
I (Average)	**794**	**920**	**677**	**— 15**	**— 37**	**—18**	**779**	**882**	**658**	**948**	**981**	**1365**	**1742**	**1901**	**2041**	**809**	**883**	**956**
April	827	851	618	— 91	— 24	—39	736	827	579	939	1011	1347	1766	1862	2015	812	908	994
May	874	827	593	—118	— 29	—50	756	799	543	944	1060	1419	1818	1887	2012	800	883	965
June	907	814	583	—149	— 39	—21	758	775	562	945	1088	1425	1852	1902	2008	826	922	997
II (Average)	**869**	**831**	**598**	**—119**	**— 31**	**—37**	**750**	**800**	**561**	**943**	**1053**	**1414**	**1812**	**1884**	**2012**	**813**	**904**	**985**
July	921	803	563	—138	— 22	—17	783	781	546	940	1096	1434	1861	1899	1997	818	907	987
Aug.	960	797	549	—120	— 28	—12	840	769	537	943	1112	1488	1903	1909	2037	839	919	1017
Sept.	1014	923	475	—153	—201		861	721		948	1240	1499	1962	2163	1974	875	976	1189
III (Average)	**965**	**841**	**529**	**—137**	**— 84**		**828**	**757**		**944**	**1149**	**1474**	**1909**	**1990**	**2003**	**844**	**934**	**1064**
Oct.	1027	819		—122	—130		905	689		948	1299		1975	2118		865	991	
Nov.	1030	784		—112	— 89		918	695		946	1327		1976	2111		868	953	
Dec.	984	751		— 46	— 40		938	711		945	1332		1930	2083		927	1008	
IV (Average)	**1013**	**785**		**— 93**	**— 87**		**920**	**698**		**946**	**1319**		**1960**	**2104**		**887**	**984**	
Notes	The figures comprise balances with foreign customers and holdings of foreign bills and foreign bonds less amounts due to foreign customers.									At end of month.						Monthly averages		

[1] Revised figures. The Riksbank holding of gold is given at its market value, other items at their book values.

Rates of Exchange.

	Nominal Quotations of the Commercial Banks (Monthly Averages)											
	London Kr. for £ 1			New York Kr. for $ 1			Paris Kr. for 100 francs			Berlin Kr. for 100 Rmk		
	1937	1938	1939	1937	1938	1939	1937	1938	1939	1937	1938	1939
Jan.	19.400	19.405	19.427	3.961	3.885	4.166	18.500	13.085	11.056	159.521	156.948	167.530
Feb.	19.400	19.411	19.422	3.970	3.872	4.149	18.504	12.810	11.050	160.000	157.008	167.010
March	19.400	19.420	19.421	3.980	3.900	4.149	18.324	12.315	11.050	160.380	157.294	166.846
I (Average)	**19.400**	**19.412**	**19.423**	**3.970**	**3.886**	**4.155**	**18.443**	**12.737**	**11.052**	**159.967**	**157.083**	**167.129**
April	19.408	19.410	19.414	3.954	3.903	4.152	17.838	12.200	11.050	159.433	157.261	166.898
May	19.402	19.403	19.420	3.935	3.909	4.151	17.654	[2] 11.034	11.050	158.333	157.432	167.156
June	19.400	19.400	19.428	3.939	3.917	4.153	[1] 17.566	11.000	11.050	158.083	158.114	167.000
II (Average)	**19.403**	**19.404**	**19.421**	**3.943**	**3.910**	**4.152**	[1] **17.686**	**11.411**	**11.050**	**158.616**	**157.602**	**167.018**
July	19.402	19.403	19.417	3.913	3.939	4.151	15.026	10.987	11.050	157.620	158.683	167.000
Aug.	19.400	19.401	19.241	3.901	3.978	4.157	14.700	10.980	10.970	157.298	159.861	167.111
Sept.	19.400	19.401	16.985	3.924	4.047	4.200	13.983	11.000	9.744	157.654	161.990	168.500
III (Average)	**19.401**	**19.402**		**3.913**	**3.988**	**4.169**	**14.570**	**10.989**	**10.588**	**157.524**	**160.178**	**167.537**
Oct.	19.400	19.419		3.921	4.079		13.237	10.962		157.789	163.750	
Nov.	19.403	19.418		3.891	4.128		13.250	10.950		157.344	165.769	
Dec.	19.406	19.425		3.887	4.163		13.250	11.036		157.074	167.450	
IV (Average)	**19.403**	**19.421**		**3.900**	**4.123**		**13.246**	**10.983**		**157.402**	**165.656**	

[1] Up to June 28th 1937, inclusive. — [2] From May 5th, inclusive.

Sweden's Economic Position.

Commercial Banks, Stock Exchange.

	Commercial banks									Share Quotations						Shares sold on the Stockholm Stock Exchange (1000 kr.)		
	Deposits (million kr.)			Advances incl. bills rediscounted (million kr.)			Cash (million kr.)			Home Industry			Other Industry					
	1937	1938	1939	1937	1938	1939	1937	1938	1939	1937	1938	1939	1937	1938	1939	1937	1938	1939
Jan.	3758	3823	4145	3814	3974	4223	598	679	721	157	158	175	186	172	171	1361	1357	1034
Feb.	3807	3822	4169	3847	4012	4265	702	613	706	158	160	175	195	172	170	1930	926	873
March	3871	3868	4260	3896	4058	4327	756	588	681	160	155	180	198	167	176	2439	1063	997
I (Average)	**3812**	**3838**	**4191**	**3852**	**4015**	**4272**	**685**	**627**	**703**	**158**	**158**	**177**	**193**	**170**	**172**	**1910**	**1115**	**968**
April	3850	3844	4217	3919	4095	4375	727	574	641	160	152	177	200	161	165	1950	950	814
May	3850	3832	4190	3922	4133	4414	728	526	543	154	157	182	183	164	170	1350	559	782
June	3825	3832	4242	3939	4140	4450	732	539	546	155	155	188	182	153	174	1329	768	1509
II (Average)	**3842**	**3836**	**4216**	**3927**	**4123**	**4413**	**729**	**546**	**577**	**156**	**155**	**182**	**188**	**159**	**170**	**1543**	**759**	**1035**
July	3907	3938	4367	3915	4135	4437	809	638	687	157	160	187	189	166	169	2087	869	376
Aug.	3934	4009	4447	3931	4172	4535	840	651	639	161	161	186	194	168	170	1340	585	732
Sept.	3964	4059		3967	4237		858	841		157	161	187	181	168	167	1154	1405	994
III (Average)	**3935**	**4002**		**3938**	**4181**		**836**	**710**		**158**	**161**	**187**	**188**	**167**	**169**	**1527**	**953**	**701**
Oct.	4000	4094		3990	4217		876	828		152	166		164	171		1561	1138	
Nov.	3841	4008		4013	4261		687	604		153	171		166	177		2082	822	
Dec.	3779	4041		4001	4254		606	601		154	173		168	174		1801	650	
IV (Average)	**3873**	**4048**		**4001**	**4244**		**723**	**678**		**153**	**170**		**166**	**174**		**1815**	**870**	
Notes	Deposits from and loans to the public within the country (at the end of the respective month)						Cash in hand, credit balances on cheque accounts with the Riksbank etc.			The figures denote mid-monthly average prices.						Averages per Stock Exchange business day		

Rates of Interest and Price Level.

	Rediscount Rate of the Riksbank (%)			Yield of Bonds (%)						Wholesale Price Index (Board of Trade) (1913 = 100)						Cost of Living Index (July 1914 = 100)		
				Govt. Loans			Industrial Loans			All Goods			Raw Materials					
	1937	1938	1939	1937	1938	1939	1937	1938	1939	1937	1938	1939	1937	1938	1939	1937	1938	1939
Jan.	2.00	2.00	2.00	3.05	2.75	2.39	·	2.97	2.79	129	135	127	127	132	125	158	165	167
Feb.	2.00	2.00	2.00	3.03	2.25	2.34	3.04	2.97	2.78	132	134	127	129	130	124	·	·	·
March	2.00	2.00	2.00	3.05	2.27	2.22	3.22	2.91	2.78	136	132	127	131	128	124	·	·	·
I (Average)	**2.00**	**2.00**	**2.00**	**3.04**	**2.42**	**2.32**	·	**2.95**	**2.78**	**132**	**134**	**127**	**129**	**130**	**124**			
April	2.00	2.00	2.00	3.12	2.49	2.55	3.28	3.00	2.77	138	131	128	132	126	125	161	165	168
May	2.00	2.00	2.00	3.13	2.33	2.53	3.25	2.98	2.77	139	130	129	134	126	126	·	·	·
June	2.00	2.00	2.00	3.07	2.18	2.57	3.25	2.89	2.77	139	130	130	135	127	126	·	·	·
II (Average)	**2.00**	**2.00**	**2.00**	**3.11**	**2.33**	**2.55**	**3.26**	**2.96**	**2.77**	**139**	**130**	**129**	**134**	**126**	**126**			
July	2.00	2.00	2.00	3.08	2.22	2.92	3.25	2.88	2.78	140	130	131	135	127	127	162	166	169
Aug.	2.00	2.00	2.00	3.06	2.25	2.76	3.24	2.88	2.93	140	128	133	136	124	128	·	·	·
Sept.	2.00	2.00	2.00	3.05	2.15	3.44	3.19	2.86	4.21	140	127		137	124		·	·	·
III (Average)	**2.00**	**2.00**	**2.00**	**3.06**	**2.21**	**3.04**	**3.23**	**2.87**	**3.31**	**140**	**128**		**136**	**125**				
Oct.	2.00	2.00		3.05	2.31		3.18	2.95		139	128		135	125		165	167	171
Nov.	2.00	2.00		3.03	2.25		3.16	2.83		137	127		133	125		·	·	
Dec.	2.00	2.00		2.98	2.43		3.05	2.82		136	127		134	124		·	·	
IV (Average)	**2.00**	**2.00**		**3.02**	**2.33**		**3.13**	**2.87**		**137**	**127**		**134**	**125**				
Notes	Monthly averages			Calculated on market prices at middle of months						Calculated on prices ruling at middle of months						Refers to end of quarters		

Trade and Industry.

	Foreign Trade (million kr.)									Export of Forest Products								
	Import			Export			Excess of Imports (−) or Exports (+)			Sawn and Planed Wood Goods 1000 stds			Paper Pulp 1000 tons			Paper and Pasteboard 1000 tons		
	1937	1938	1939	1937	1938	1939	1937	1938	1939	1937	1938	1939	1937	1938	1939	1937	1938	1939
Jan.	142	159	174	123	145	149	−19	−14	−25	30	25	38	205.5	182.6	196.9	51.2	46.3	43.3
Feb.	133	147	163	115	134	125	−18	−13	−38	8	8	10	102.5	79.8	92.2	50.7	35.5	39.5
March	160	173	191	114	133	139	−46	−40	−52	10	12	10	60.2	65.1	73.6	56.6	39.4	51.3
I (Average)	**145**	**160**	**176**	**117**	**137**	**138**	**−28**	**−23**	**−38**	**16**	**15**	**19**	**122.7**	**109.2**	**120.9**	**52.8**	**40.4**	**44.7**
April	199	167	201	149	157	152	−50	−10	−49	16	22	18	190.1	174.4	176.8	62.2	35.1	52.0
May	184	167	208	171	159	166	−13	− 8	−42	58	52	67	294.0	177.1	209.3	52.0	34.0	52.69
June	179	155	202	169	150	178	−10	− 5	−24	104	66	114	239.4	171.3	187.6	53.4	36.5	52.5
II (Average)	**187**	**163**	**204**	**163**	**155**	**165**	**−24**	**− 8**	**−38**	**59**	**47**	**66**	**241.2**	**174.3**	**191.2**	**55.6**	**35.2**	**52.4**
July	185	160	204	190	156	160	+ 5	− 4	−44	113	71	94	271.9	152.1	171.5	51.9	35.2	52.3
Aug.	171	173	217	187	150	185	+16	−23	−32	103	61	110	237.7	182.2	217.7	60.3	35.7	61.5
Sept.	187	178		197	154		+10	−24		99	59		241.6	159.9		56.5	39.8	
III (Average)	**181**	**170**		**191**	**153**		**+10**	**−17**		**105**	**63**		**250.4**	**164.7**		**56.1**	**39.6**	
Oct.	192	199		195	161		+ 3	−38		96	70		238.6	184.9		58.9	49.8	
Nov.	193	198		186	172		− 7	−26		91	97		213.4	194.9		54.5	40.4	
Dec.	184	190		198	167		+14	−23		67	80		275.7	257.7		55.7	45.6	
IV (Average)	**190**	**196**		**193**	**167**		**+ 3**	**−29**		**85**	**82**		**242.6**	**212.5**		**56.4**	**45.3**	
Notes										Petersburg standard = 4.67 m³			Estimated air-dry weight					

	Export of Iron Ore 1000 tons			Export of Workshop Products million kr.			Index of Production according to Feder. of Swed. Industries (1935 = 100)			Supply of Industrial Work Index numbers			Waggon-axle Kilometres of loaded Trucks on State Railways			Unemployment in Trade Unions (%)		
	1937	1938	1939	1937	1938	1939	1937	1938	1939	1937	1938	1939	1937	1938	1939	1937	1938	1939
Jan.	696	928	765	8.14	8.43	9.00	113	120	118	·	·	·	37.8	41.1	40.1	16.2	15.6	14.7
Feb.	786	850	748	7.58	9.42	11.62	114	120	120	·	·	·	41.3	42.5	42.1	14.8	14.5	13.0
March	958	892	925	8.85	9.78	10.57	116	119	122	·	·	·	43.3	47 9	48.9	14.3	12.9	11.6
I (Average)	**813**	**890**	**813**	**8.19**	**9.21**	**10.40**	**114**	**120**	**120**	**4.01**	**3.45**	**3.66**	**40.8**	**43.8**	**43.7**	**15.1**	**14.3**	**13.1**
April	980	1014	924	9.52	10.42	11.48	118	119	123	·	·	·	47.6	43.7	46.1	11.1	10.7	9.0
May	835	1133	1093	8.30	10.20	10.40	119	118	123	·	·	·	43.3	45.2	47.8	8.3	8.4	6.3
June	1098	1062	1115	9.40	8.73	10.04	120	116	125	·	·	·	42.4	41.1	48.5	7.7	8.5	5.5
II (Average)	**971**	**1070**	**1044**	**9.07**	**9.78**	**10.64**	**119**	**118**	**124**	**4.10**	**3.51**	**3.92**	**44.4**	**43.3**	**47.5**	**9.0**	**9.2**	**6.9**
July	1228	1013	1115	9.24	10.51	9.41	120	115	125	·	·		46.1	44.8	49.1	6.4	7.2	4.7
Aug.	1231	1049	1150	9.22	9.67	10.24	121	114	127	·	·		46.3	45.9		6.2	7.2	
Sept.	1134	894	815	9.88	9.26		122	114		·	·		48.4	48.8		6.8	7.5	
III (Average)	**1198**	**985**	**1027**	**9.45**	**9.81**		**121**	**114**		**4.06**	**3.53**		**46.9**	**46.5**		**6.5**	**7.3**	
Oct.	987	696		9.65	9.72		123	115		·	·		48.5	47.2		8.3	9.0	
Nov.	1062	696		8.89	10.14		123	116		·	·		43.8	44.9		11.1	11.2	
Dec.	989	521		10.20	11.15		122	116		·	·		44.6	41.9		17.8	17.8	
IV (Average)	**1013**	**638**		**9.58**	**10.34**		**123**	**116**		**3.80**	**3.63**		**45.6**	**44.7**		**12.4**	**12.7**	
Notes	Shipments of the Grängesberg Co.			Motors, electr. machinery, ball bearings, separators, telephones, etc.			Seasonal change removed			The figure 3 denotes normal supply of work			Million kilom. per month			% of total members at end of month		

Stockholm 1939. Kungl. Boktr. P. A. Norstedt & Söner 393362

SKANDINAVISKA BANKEN

AKTIEBOLAG

Statement of Condition September, 30th, 1939

ASSETS:

Cash in hand		Kr. 166.374.279: 37
Bills:		
Swedish	Kr. 313.573.062: 88	
Foreign	» 12.237.658: 99	» 325.810.721: 87
Loans (secured)		» 403.083.788: 69
Current Account (secured)		» 76.714.887: 80
Swedish Banks and Savings Banks		» 40.702.529: 80
Foreign Banks		» 47.034.000: 13
Sundry Accounts		» 45.056.576: 90
Bonds		» 80.034.754: 29
Shares		» 158.870.072: 36
Bank Buildings & Furniture		» 16.718.118: —
		Kr. 1.360.399.729: 21

LIABILITIES:

Bills at sight in circulation (»postremiss» bills)		Kr. 18.910.271: 50
Deposits:		
at sight	Kr. 278.304.791: 55	
at notice	» 764.030.823: 42	» 1.042.335.614: 97
Swedish Banks		» 24.690.671: 41
Swedish Savings Banks		» 10.673.510: 36
Foreign Banks		» 29.179.914: 28
Sundry Accounts		» 72.609.746: 69
Share Capital	Kr. 87.188.000: —	
Reserve Funds	» 74.812.000: —	» 162.000.000: —
		Kr. 1.360.399.729: 21

Inside the Circle:
Private Telephone Lines of the Skandinaviska Banken.
Outside the Circle:
Direct Telephonic Connections with Foreign Countries.
Stockholm
Göteborg
Malmö
N.America
S.America
Australia
Asia
Africa